



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
P0040200	MEC002-VU	1	1	Net 30	M17-4-H1150-R3.500	17-4 SS H1150 Round Bar 3.500" MATERIAL: 17-4 PH CONDITION H1150 PURCHASE MATERIAL: 17-4 PH / S 17400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564			36	7/13/2018	36		S091272	Stock	7/11/2018	\$ 112.93 / ft	1		\$4,065.48	Metaux Castle
		2	1		M17-4-H1150-R3.000	17-4 H1150 Round Bar 3.000" MATERIAL: 17-4 PH CONDITION H1150 PURCHASE MATERIAL: 17-4 PH / S 17400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564			24		24		S091273	Stock	7/11/2018	\$ 80.75 / ft	1		\$1,938.00	Metaux Castle
										Total:		60							\$6,003.48	

**Castle Metals®**

A. M. Castle & Co.

**PACKING SLIP/
CERTIFICATE OF CONFORMANCE**

Page 1 of 1

Pack Slip No:2935866

Ship From: A. M. Castle & Co. Janesville 3800 Enterprise Drive Janesville, WI 53546		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 26-JUN-2018	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier CASTLE NETWORK	BOL No 2949048
			Delivery No 121909319	

Shipment Details

Final Destination Branch -

Order No 5175008	Line No 1	Item No 39900.MO	Description 3.0000.RD.17CR-4NI.STAINLESS.CF.H1150.132.0000-156.0000 - CUT IN HALF SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com	
Purchase Order No 40200	Part Number	Ordered Qty 2.00 PCS	Invoice Qty 24.0000 FT	
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS				
Mill/Source VALBRUNA CORPORATION	Heat Number 273955	Mech ID	PCS 2	Shipped Qty (LBS) 624.0000

These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

Name:



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 1

Pack Slip No:2935864

Ship From:	Sold To:	Ship To:	Deliver To:
A. M. Castle & Co. Janesville 3800 Enterprise Drive Janesville, WI 53546	DART AEROSPACE LTD 1270 ABERDEEN ON K6A 1K7 CA	DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped	F.O.B.	Freight Terms	BOL No
26-JUN-2018	ORIGIN	Prepaid	2949046
		Carrier	Delivery No
		CASTLE_NETWORK	121906163

Shipment Details

Order No	Line No	Item No	Description
5172269	1	23972.MO	3.5000.RD.17CR-4NI.STAINLESS.CF.H1150. 6' RDM'S - CUT IN HALF SPECIFICATIONS: AMS 5643 ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com
Purchase Order No	Part Number	Ordered Qty	Invoice Qty
40200		3.00 PCS	36.0000 FT
Details			
ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS			
Mill/Source	Heat Number	Mech ID	PCS
VALBRUNA CORPORATION	273305		3
		Width (IN)	Length (IN)
			1259.3350

These items are controlled by the U.S. Government and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative: _____ Date: _____ Name: _____



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO040200

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO040200

PO Date: 6/14/18

Due Date: 6/29/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Baker, Diane
Phone: dbaker@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

REVISED

E-MAILED
JUN 15 2018

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 <i>AT</i>		M17-4-H1150-R3.500		17-4 SS H1150 Round Bar 3.500" : MATERIAL: 17-4 PH CONDITION H1150 PURCHASE MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564	Firmed	5/29/18	36 ft	0 ft	36 ft	\$112.93/ft	\$4,065.48

Line Item Note NOTE: CUT IN SECTION OF 6 FT

Items											
Line Item	Job	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
2		M17-4-H1150-R3.000		17-4 H1150 Round Bar 3.000" : MATERIAL: 17-4 PH CONDITION H1150 PURCHASE MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564	Firmed	6/29/18	24 ft	0 ft	24 ft	\$80.75/ft	\$1,938.00
Line Item Note NOTE: CUT BAR IN SECTION OF 6 FT											
										Grand Total:	\$6,003.48
Order Notes											
Procurement Quality Clauses A005 right of entry A012 chemical and physical test report A016 personnel qualification A017 raw material identification (as applicable) A026 certification of material conformance A041 quality management system A042 dart notification by supplier A043 retention of quality documents A048 counterfeit parts avoidance, detection, mitigation and disposition program A049 supplier awareness Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.											

Plex 6/15/18 11:38 AM dart.lavoie.chantal

Diane Baker

From: Desbiens, Marc <mdesbien@amcastle.com>
Sent: Thursday, June 14, 2018 1:51 PM
To: Diane Baker
Cc: Chantal Lavoie
Subject: RE: PO040200

Hi Diane,

Ok, we will cut the 12 ft bars in half

For the 3"dia \$ 80.75 Ft

Delivery for both items is 8-9 days

Thanks

Marc Desbiens
Inside sales representative
Castle Metals, Montreal, QC
Direct line 514-795-8176
1-800-806-6660 ext 52226
Fax # 1-855-892-6370
Customized Supply Chain Solutions for Your Metal Needs

From: Diane Baker [mailto:dbaker@dartaero.com]
Sent: Thursday, June 14, 2018 1:46 PM
To: Desbiens, Marc
Cc: Chantal Lavoie
Subject: RE: PO040200

Hi Marc,

No, we want to receive in 6' lengths due to the material being so heavy.

I will also need this in 3" - # M17-4-H1150-R3.000

17-4 H1150 Round Bar 3.000" : MATERIAL: 17-4 PH CONDITION H1150 - 24 Feet cut to 6 ft lengths.

Please provide price and delivery.

Thank you
Diane

From: Desbiens, Marc <mdesbien@amcastle.com>
Sent: Thursday, June 14, 2018 1:42 PM

To: Diane Baker <dbaker@dartaero.com>
Cc: Chantal Lavoie <clavoie@dartaero.com>
Subject: FW: PO040200

Hi Diane,

There's a note on the PO: "cut to 6" lengths"

Is this for internal use ?

Thanks

Marc Desbiens
Inside sales representative
Castle Metals, Montreal, QC
Direct line 514-795-8176
1-800-806-6660 ext 52226
Fax # 1-855-892-6370
Customized Supply Chain Solutions for Your Metal Needs

From: Diane Baker [<mailto:dbaker@dartaero.com>]
Sent: Thursday, June 14, 2018 9:56 AM
To: Desbiens, Marc
Cc: Chantal Lavoie
Subject: PO040200

Good morning Marc,
Please see attached PO040200, please confirm.

Thank you

Diane

Diane Baker
Purchasing Coordinator
DART AEROSPACE
T 1 613 632-5200 ext. 300
F 1 613 632-1053
E dbaker@dartaero.com
1 800 556- 4166
www.dartaerospace.com

This E-mail may contain proprietary information and may be confidential. You are to treat this material in accordance with your company's confidentiality policies and limit any distribution accordingly.

**VALBRUNA**SLATER STAINLESS, INC.
2400 TAYLOR STREET WEST - PO BOX 630
FORT WAYNE IN 46802 USA
PHONE 260.434.2800 - FAX 260.434.2801**Product Certification Report**Report Number: **5468961**

Certified on Mar 08, 2018 Page 1 of 2

Order I.D. M181701721 0010	Order Date 2/10/18	Commodity Code 23972
Dim 1 3.5000	Dim 2 .0000	Customer I.D. 0008000061
Product Shape Round	Product Surface HRRT	Customer Purchase Order 436603
Length (Inches) 132.000 Min. 156.000 Max.	Bill of Lading # PL18000215/1	Weight 007633 LBS

Ship To
A.M. CASTLE & CO
3800 ENTERPRISE DRIVE
JANESVILLE, WI 53546

Sold To
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN, IN 46802

Lifts: 0039 0040 0041

ASME SA564-13	AISI 630	ASTM A484-17
Condition H-1150	3174-04 REV 41	EN 10204 3.1
AMS H 6875B	ASTMA 370-17	AMS 5643V
ASTM A564-13		

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	Cb	Ta
.04	.48	.025	.001	.42	15.18	4.53	.29	3.31	.28	.00

BRINELL Type A device E10-15aHBW
301**ROOM TEMP TENSILE ASTM E8-16a**

TS (PSI)	.2%YS (PSI)	%EL (4d)	%RA
145400	127700	19.4	61.5

MAGNETIC PARTICLE to AMS2303F

FREQ SEV

AVG .00 .00

MACRO ASTM E340-15/E381-01 (12)MACRO
OK**PERCENT FERRITE (AMS 2315G)**

% FERRITE Etchant Magnification X

AVG .0 Marbles 100

Solution heat treated at 1900 degrees F plus or minus 25 degrees, one hour minimum and air cooled.

Heat treated at 1150 degrees F for 4 hours and air cooled.

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Chemical testing to one or more of the listed ASTM methods:

E1019-11, E1086-14.

Location of tensile fracture: inside middle of gage length. %elong after fracture.

Chemical Analysis performed at Acciaierie Valbruna, Italy.

No mercury or low melting alloy contamination. No weld repair.

Material melted in Italy, manufactured in the United States.

Material conforms to listed specifications. DFARS compliant. Our heat treat furnaces use air atmosphere.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes. Including Federal law Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Tad Landwehr

email: TLandwehr@valbruna.us

Tad Landwehr

**VALBRUNA**SLATER STAINLESS, INC.
2400 TAYLOR STREET WEST - PO BOX 630
FORT WAYNE IN 46802 USA
PHONE 260 474.2800 - FAX 260.434.2801**Product Certification Report**Report Number: **5468961**

Certified on Mar 08, 2018 Page 2 of 2

Order I.D.	Order Date	Commodity Code		
M181701721 0010	2/10/18	23972		
Dim 1	Dim 2	Heat I.D.	Customer I.D.	Customer Purchase Order
3.5000	.0000	273305	0008000061	436603
Product Shape	Product Surface	Customer Grade		
Round	HRRT	17-4		
Length (Inches)	Bill of Lading #	Weight		
132.000 Min. 156.000 Max.	PL18000215/1	007633 LBS		

Ship To A.M. CASTLE & CO
3800 ENTERPRISE DRIVE
JANESVILLE, WI 53546

Sold To VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN, IN 46802

Quality system is compliant with ISO 9001:2015. Produced in accordance with EN 10204 3.1.

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Manager Laboratory Services

email: TLandwehr@valbruna.us

Tad Landwehr

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 17-4 PH S17400 / TYPE 630 SS ROUND BAR
GRAIN MUST BE ALONG LENGTH OF BAR
MINIMUM YIELD STRENGTH PER TABLE
MINIMUM ULTIMATE STRENGTH PER TABLE

SPECIFICATION: AMS 5643 OR ASTM A564

PART NUMBER: M17-4-1 HHHH-R | X XXX | WHERE: HHHH SPECIFIES THE MATERIAL CONDITION (PER TABLE BELOW)
COND | O.D. | X.XXX = DIAMETER (IN INCHES)

MATERIAL CONDITION TABLE:

CODE	CONDITION	MIN YIELD STRENGTH (KSI)	MIN ULTIMATE TENSILE STRENGTH (KSI)
(OMITTED)	NONE SPECIFIED (CONDITION A NOT ACCEPTABLE)	100	150
H900	H900	170	190
H925	H925	155	170
H1025	H1025	145	155
H1075	H1075	125	145
H1100	H1100	115	140
H1150	H1150	105	135
CONDA	CONDITION A (SOLUTION TREATED)		

NOTES: MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
TENSION OR SHEAR APPLICATIONS IN COLD WEATHER CONDITIONS
MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
APPLICATIONS WHERE STRESS CORROSION CRACKING IS POSSIBLE
CONDITION A NOT TO BE USED IN DESIGN FOR FINAL PRODUCT AND
SHOULD ALWAYS BE HEAT TREATED

EXAMPLES:

PART 4.000" DIAMETER BAR MIN YTS = 150 KSI, MIN YTS = 100 KSI
2.500" DIAMETER BAR H900 CONDITION
3.250" DIAMETER BAR H1025 CONDITION
0.750" DIAMETER BAR A CONDITION

PART NUMBER
M17-4-R1.000
M17-4-H900-R2.500
M17-4-H1025-R3.250
M17-4-CONDA-R0.750

RELEASED
2017-10-31
E(m17-728) QM

APPROVED

C	ADDED MATERIAL CONDITION (C171-107)	NO	17.09.14
B	REFORMAT DWS: S17400 TYPE 630 ADDED TO PURCHASE MATERIAL (ZN DS-1), ADD A564 SPEC (C8-1), REF PAR 08-020A	VS	10.05.20
A	NEW ISSUE	CP	05.03.16
REV.	DESCRIPTION	BY	DATE
DESIGN	NO		
DRAWN	NO		
CHECKED	CP		
MFG. APPR.	RA		
APPROVED	WM		
DE APPR.	CP		
DATE	17.09.14		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M17-4-R			
TITLE 17-4 SS ROUND BAR			
SHEET 1 OF 1			
SCALE NTS			
DATE 17.09.14			
COPYRIGHT © 2006 BY DART AEROSPACE LTD			
ALL RIGHTS RESERVED. NO PART OF THIS PUBLICATION MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M17-4-H1150-R3.500
 DATE: 18/07/12

PO / BATCH NO.: P0040200/5091272

MATERIAL CERT REC'D: ✓
 QUANTITY RECEIVED: 36'
 QUANTITY INSPECTED: 36'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 3.500"
 THICKNESS RECEIVED: 3.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<u>(N)</u>	
CORRECT FINISH	<u>(Y)</u>	N	
CORROSION	Y	<u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u>	N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u>	N	<u>AMS 5643</u>
CORRECT THICKNESS	<u>(Y)</u>	N	
PHOTO REQUIRED	Y	<u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u>	N	<u>HT-273305</u>
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u>	N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT ID</u> DATE: <u>18/07/12</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



VALBRUNA

SLATER STAINLESS, INC.
2400 TAYLOR STREET WEST - PO BOX 639
FORT WAYNE, IN 46802-1442 219.424.1300

Product Certification Report

Report Number: 5486501

Certified on Apr 23, 2018 Page 1 of 2

Order ID:	M181702376 0010	Order Date:	39900	Commodity Code:	39900
Dim 1:	3.0000	Dim 2:	273955	Heat ID:	447771
Product Shape:	Round	Product Surface:	Turned/Burnished Cold Finished	Customer Order:	630
Length (Inches):	.000 Min.	Weight:	.000 Max.	Weight:	002490 LBS

A.M. CASTLE & CO
3800 ENTERPRISE DRIVE
Ship JANESVILLE, WI 53546

VALBRUNA STAINLESS INC.
Sold 2400 TAYLOR STREET WEST
To FORT WAYNE, IN, IN 46802

Lifes:	0004	Condition:	H-1150	AMS 5643F	AMS 5643F	AMS 5643F	AMS 5643F	AMS 5643F	AMS 5643F
AISI:	630	AMS:	2303F	ASTM A564-13e1	Type 630				
UNS:	S17400	ASTM:	A564-13e1	Type 630					
ASME:	SA-478	ASTM:	A564-13e1	Type 630					
CHEMICAL ANALYSIS									
C	.035	Mn	.024	P	.001	S	.40	Cr	15.21
Si	.024	Mn	.024	P	.001	S	.40	Cr	15.21
Ni	.024	Mn	.024	P	.001	S	.40	Cr	15.21
Mo	.024	Mn	.024	P	.001	S	.40	Cr	15.21
Cb+Ta	.024	Mn	.024	P	.001	S	.40	Cr	15.21
Brinell	2803	Rockwell	106	Rockwell	106	Rockwell	106	Rockwell	106
Room Temp Tensile	ASTM E8-16a	TS (PSI)	.2%YS (PSI)	%EL (4d)	%RA				
144900	127300	19.3	63.8						
MAGNETIC PARTICLE	to AMS2303F								
FREQ	SEV								
AVG	.00	.00							
MACRO	ASTM E340-15/E391-01 (12)								
MACRO									

PERCENT FERRITE (AMS 2315G)	
% FERRITE	Etchant Magnification X
.0	Marbles 100
AVG	
Solution heat treated at 1900 degrees F plus or minus 25 degrees, one hour minimum and air cooled.	
Heat treated at 1150 degrees F for 4 hours and air cooled.	
Reduction ratio 5 To 1 Min.	
Electric Furnace melted; AOD refined.	
Chemical testing to one or more of the listed ASTM methods:	
E1019-11, E1086-14.	
Location of tensile fracture: inside middle of gage length, %elong after fracture.	
Chemical Analysis performed at Acciaierie Valbruna, Italy.	
No mercury or low melting alloy contamination. No weld repair.	
Material melted in Italy, manufactured in the United States.	

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services
Tad Lundvick
tlandvick@valbruna.us



VALBRUNA

SLATER STAINLESS, INC.
1401 TAYLOR STREET WEST
FORT WAYNE, IN 46822 USA
PHONE 219 444 1800 - FAX 219 444 1801

Product Certification Report

Report Number: 5486501

Certified on Apr 23, 2018 Page 2 of 2

Order Data		Contract Code	
Order ID	M181702376 0010	Contract Code	39900
Dim 1	3.0000	Customer ID	447771
Dim 2	.0000	Customer Purchase Order	447771
Product Shape	Round	Product Surface	Turned/Burnished Cold Finished
Length (inches)	.000 Min.	Weight	630
		Dim of Lading	002490 LBS

A.M. CASTLE & CO
3800 ENTERPRISE DRIVE
JANESVILLE, WI 53546

VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
FORT WAYNE, IN, IN 46802

Sold To

Material conforms to listed specifications. DFARS compliant. Our heat treat furnaces use air atmosphere. Quality system is compliant with ISO 9001:2015. Produced in accordance with EN 10204 3.1.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info. I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services
Tad Landwehr

TLandwehr@valbruna.us
Tad Landwehr

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL
17.4 PH / S17400 / TYPE 630 SS ROUND BAR
GRAIN MUST BE ALONG LENGTH OF BAR
MINIMUM YIELD STRENGTH PER TABLE
MINIMUM ULTIMATE STRENGTH PER TABLE

SPECIFICATION:

AMS 5643 OR ASTM A564

PART NUMBER:

M17-4-1 HHHH-R | X XXX | COND | O.D. |

WHERE: HHHH SPECIFIES THE MATERIAL CONDITION (PER TABLE BELOW)
X.XXX = DIAMETER (IN INCHES)

MATERIAL CONDITION TABLE:

CODE	CONDITION	MIN YIELD TENSILE STRENGTH (KSI)	MIN ULTIMATE TENSILE STRENGTH (KSI)
(OMITTED)	NONE SPECIFIED (CONDITION A NOT ACCEPTABLE)	100	150
H900	H900	170	190
H925	H925	155	170
H1025	H1025	145	155
H1075	H1075	125	145
H1100	H1100	115	140
H1150	H1150	105	135
CONDA	CONDITION A (SOLUTION TREATED)		

NOTES: MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
TENSION OR SHEAR APPLICATIONS IN COLD WEATHER CONDITIONS
MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
APPLICATIONS WHERE STRESS CORROSION CRACKING IS POSSIBLE
CONDITION A NOT TO BE USED IN DESIGN FOR FINAL PRODUCT AND
SHOULD ALWAYS BE HEAT TREATED

EXAMPLES:

PART
4.000" DIAMETER BAR MIN UTS = 150 KSI, MIN YTS = 100 KSI
2.500" DIAMETER BAR H900 CONDITION
3.250" DIAMETER BAR H1025 CONDITION
0.750" DIAMETER BAR A CONDITION

PART NUMBER
M17-4-R3.700
M17-4-H900-R2.500
M17-4-H1025-R3.250
M17-4-CONDA-R0.750

RELEASED
2017-10-31
E/CW17-718

APPROVED

C	ADDED MATERIAL CONDITION (CR17.107)	NO	17.09.14
B	REFORMAT DWG. S17400 TYPE 630 ADDED TO PURCHASE MATERIAL (ZN D8-1), ADD A564 SPEC (C8-1).	VS	10.05.20
A	NEW ISSUE	CP	05.03.16
REV	DESCRIPTION	BY	DATE
DESIGN	NO		
DRAWN	NO		
CHECKED	CP		
MFG. APPR.	RA		
APPROVED	WM		
DE APPR.	CP		
DATE	17.09.14		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M17-4-R			
TITLE 17-4 SS ROUND BAR			
SHEET 1 OF 1			
SCALE NTS			
CONFIRMED BY DART AEROSPACE LTD			
DATE 17.09.14			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M17-4-H1150-R3.000

PO / BATCH NO.: P0040200

DATE: 18/07/12

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 3.000"

QUANTITY RECEIVED: 24'

THICKNESS RECEIVED: 3.000"

QUANTITY INSPECTED: 24'

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y N	
CORROSION	Y <input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y N	AMS 5643
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y N	AMS 5643 HT: 273955
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT PD</u>	SIGNED OFF BY: _____
DATE: <u>18/07/12</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in